



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,492	09/12/2003	Kenneth K. Li	2138-295	6352
24972	7590	08/15/2005		EXAMINER
FULBRIGHT & JAWORSKI, LLP				ROBINSON, MARK A
666 FIFTH AVE			ART UNIT	PAPER NUMBER
NEW YORK, NY 10103-3198			2872	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/660,492	LI, KENNETH K.
Examiner	Art Unit	
Mark A. Robinson	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 10 June 2005.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-15 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/10/05.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Information Disclosure Statement***

1. Certain references listed on the IDS filed 6/10/05 have been lined through to avoid duplicate printing on any patent issuing from the present application since these references are already of record in the present application.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 7-9 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Li (US 5707131).  
  
Li shows in fig. 2 an optical device and method therefore including a target(I), first(M1) and second(M2) concave opposing reflectors each having first and second focal points (S1,S2;S2,I), wherein the reflectors are about the same size and shape, are either ellipsoids or toroids of revolution (col. 1 line 33), and have diameters which are greater than the distance

Art Unit: 2872

between the source and target (see also figs. 4 and 5), further wherein the system includes a retro-reflector (see fig. 4) on the opposite side of the source as the first reflector. Note that the reflectors share a common focal point(S2). Further, reflectors M1 and M2 are taught to be ellipsoids. Thus, the focal points (S1,S2;S2,I) are conjugate points which serve to define an optical axis of each reflector, and fig. 2 clearly shows the optical axis of each reflector (i.e. the claimed first and second optical axis) to be collinear (along line Y).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4,6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 5707131).

Regarding claims 4 and 6, Li does not specifically teach spherical or additional non-ellipsoidal portions for the reflectors. However, Li suggests use of any concave shape in

Art Unit: 2872

col. 3 lines 3-4 and reflectors having each of these shapes are well known. It would have been obvious to the ordinarily skilled artisan at the time of invention to include such reflector shapes in Li's optical system in order to provide for such features as correction of particular types of aberrations (e.g. coma) or allowance for the spatial constraints of the particular optical arrangement being utilized, such considerations being routinely contemplated by those of ordinary skill in the art.

Regarding claim 10, although not taught by Li, image sources are well known and commonly used in mirror projection systems. It would have been obvious to the ordinarily skilled artisan at the time of invention to illuminate an image source with Li's optical system in order to enable projection of the image.

***Response to Arguments***

6. Applicant's arguments filed 6/10/05 have been fully considered but they are not persuasive.

Applicant has argued that the patent to Li does not describe first and second opposing concave reflectors each with first and second focal points.

Art Unit: 2872

However, the figures of Li clearly show the reflectors (M1,M2) to each have two focal points. The reflectors are taught to be ellipsoids or toroids (col. 1 line 33). Ellipsoidal or toroidal reflectors by definition have two focal points.

Applicant has further argued that improper hindsight cannot be used to reconstruct or modify the prior art reference to render claims unpatentable.

However, the rejection of at least independent claim 1 is not based upon reconstructing or modifying Li, but is based upon anticipation by this reference.

Applicant has argued that Li teaches the mirrors M1 and M2 to have non-collinear optical axes Z1 and Z2 and that axis Y is not taught to be the optical axis. Applicant has further requested that the examiner cite the portion of Li which teaches axis Y to be the optical axis.

As noted above, Li teaches the reflectors to be either ellipsoids or toroids. Such surfaces inherently and necessarily have two focal points. Further, the optical axis of such reflective surfaces may be defined as the line connecting the two focal points. This line also coincides with the major axis of the ellipse (only a portion of the entire ellipse is shown in fig. 2 of Li). Cited herewith are examples of documents supporting this. Note Hunter (of record) who teaches axis 13,

Art Unit: 2872

which includes both focal points of each reflector, to be the optical axis (col. 6 line 15). Note Albou (US 6874923) who teaches that the optical axis is defined by the first and second foci of an elliptical reflector (abstract). Note Strambersky (US 2005/0152154) who teaches the optical axis(27) of an elliptical reflector to coincide with its major axis and to thus include the two focal points(22,23). Note Heimer (US 6253006) who defines the optical axis as the major axis (which includes the two foci) of an elliptical reflector. As to the question of where the limitation in question is taught by Li, such teaching is clearly shown in fig. 2. Although optical axes may be defined for the reflectors as the axis which passes through the centers of curvature of the reflector segments shown in fig. 2 of Li, this does not preclude an(other) optical axis being defined for each of the reflectors in the manner set forth in the rejection as supported by the references listed above.

Regarding the obviousness rejection, applicant has relied upon the same arguments noted above. In response, the points made by the examiner are repeated.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suzuki (US 6142659) and Kimura (US 5749642) show illumination systems including reflectors with two focal points lying on or defining the optical axis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Robinson whose telephone number is (571) 272-2319.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn, can be reached at (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system,

Art Unit: 2872

see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR

8/11/5

  
MARK A. ROBINSON  
PRIMARY EXAMINER